Remarks on Dr. Gill's Paper in the Monthly Notices *for June.*
      By Arthur A. Rambaut, M.A., D.Sc., Radcliffe Observer.

Having carefully read Dr. Gill's reply to my paper in the *Monthly Notices*, vol. lviii., No. 5, I cannot find anything in it that weakens in the least degree any of the arguments I have there adduced, and so far as the main contention is concerned I should be well content to allow it to be decided by what has already been written, and thus avoid cumbering the pages of the *Monthly Notices* with matter of a merely controversial kind.

I desire, however, to point out two mistakes—one on Dr. Gill's part, and one on my own.

1. The four types of equations which Dr. Gill has written (vol. lviii., p. 422) are not those which I have considered on p. 271 of the same volume, and therefore Dr. Gill's subsequent remarks have no bearing on my contention.

2. In the second group of equations on p. 263 I regret to say that an error has occurred which, so far as I am aware, has not been detected by Dr. Gill, or anyone else who has done me the honour of reading the paper.

I have there stated that the residuals denoted by the capital Vs are equal to the differences between the residuals denoted by small letters with corresponding suffixes and the constant error of the group, or that $V_{11}=v_{11}-a_1$; $V_{12}=v_{12}-a_1$; &c. This is not necessarily true, although it is very nearly so in the case before us. This error does not touch the main argument of the paper, its effect being confined to the second, third, and fourth paragraphs of p. 264, and the first four paragraphs of p. 265. Nor does it affect the sufficiently obvious result contained in the first paragraph of p. 264, viz., that the means of Dr. Gill's residuals in each group vanish identically. This is, however, of less consequence now that Dr. Gill disowns the argument founded on a comparison of his means and mine for each group of equations, which I referred to as being of no value whatever.

Dr. Gill says that he has never employed any such argument, and of course I accept his statement without reserve as implying that he had no intention of using it against me.

But I think it is most unfortunate that this comparison, in which the mean of my residuals appears, to the casual reader, to such a disadvantage as compared with Dr. Gill's, should have been inserted at that place (*Monthly Notices*, vol. lviii. p. 62), where Dr. Gill is showing in what respects my first solution is defective, or that my residuals should have been quoted at all, since the comparison was only given, as Dr. Gill tells us, to demonstrate the general arithmetical accuracy of his work, although this had never been called in question.

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Mean Areas and Heliographic Latitudes of Sun-spots in the year 1897, deduced from Photographs taken at the Royal Observatory, Greenwich ; at Dehra Dûn (India) ; and in Mauritius.

The results here given are in continuation of those printed in the *Monthly Notices*, vol. lviii., p. 307, and are deduced from the measurements of solar photographs taken at the Royal Observatory, Greenwich ; at Dehra Dûn, India ; and at the Royal Alfred Observatory, Mauritius.

Table I. gives the mean daily areas of umbræ, whole spots, and faculæ for each synodic rotation of the Sun in 1897 ; and Table II. gives the same particulars for the entire year 1897 and the eight preceding years for the sake of comparison. The areas are given in two forms. First, projected areas—that is to say, as seen and measured on the photographs, these being expressed in millionths of the Sun's apparent disc ; and next, areas as corrected for foreshortening, the areas in this case being expressed in millionths of the Sun's visible hemisphere.

Table III. exhibits for each rotation in 1897 the mean daily area of whole spots, the mean heliographic latitude of the spotted area, and the mean distance from the equator of all spots; and Table IV. gives the same information for the year as a whole, similar results from 1889 to 1896 being added, as in the case of Table II. Tables II. and IV. are thus in continuation of the similar tables for the years 1874 to 1888 on pp. 381 and 382 of vol. xlix. of the *Monthly Notices*.

The rotations in Table I. and Table III. are numbered in continuation of Carrington's series (*Observations of Solar Spots made at Redhill*, by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853, November 9. The assumed prime meridian is that which passed through the ascending node at mean noon on 1854, January 1, and the assumed period of the Sun's sidereal rotation is 25·38 days. The dates of the commencement of the rotations are given in Greenwich civil time, reckoning from mean midnight.